Suite 3, 5090 Central Highway, Pennsauken, NJ 08109 • (609) 663-7995

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION EPA CONTRACT 68-01-6669

### MEMORANDUM

TO:

Jay Rodstein, OSC, EPA Region III

PCS #5324

THRU:

Steve Jarvela, DPO, EPA Region III

THRU:

Rich Habrukowich, TATL, Region III for

FROM:

Greg Janiec, ATATL, Region III 🚜

Peter Harnett, TATM, Region III

SUBJECT:

Dublin TCE Site

DATE:

September 15, 1986

### BACKGROUND

During a routine drinking water survey, the Bucks County Health Department discovered elevated levels of trichloroethene (TCE) in tap water samples obtained from the Dublin Borough area (see the water summary attached). The borough water supply primarily consists of private and public wells. Elevated TCE levels (greater than 5 ppb) have been located in approximately 170 homes, apartments and businesses affecting approximately 500 residents. It is worth noting that Whistlewood Apartments has 144 units. As such, many of the estimated 500 affected residents live here.

The Bucks County Health Department has issued advisories to the public regarding water usage in which they recommended installation of a carbon filter system for levels of TCE above 5 ppb. For levels above 500 ppb of TCE, they cautioned residents not to bathe with this water.

The EPA Region III Emergency Response Section received the Bucks County Health Department data for evaluation on September 3, 1986. The OSC and his technical staff determined the current water usage status of all residential and public wells which were determined to have elevated levels of TCE. A meeting between EPA, Roy F. WESTON Technical Assistance Team (TAT), and Bucks County Health Department was held on September 12, 1986 to obtain additional information in order to develop a coordinated approach by the respective agencies.

Following this meeting, a site tour was conducted to make observations to locate the source of the TCE contamination. Additional information was obtained locally at the Dublin Borough Office which is located at 119 Maple Avenue. The following is a listing of contacts concerning this project.

Dublin Borough Hon. John Colflesh (215) 249-9040 Borough Manager Luther Wonsidler (215) 249-3310 Bucks County Health Department Pete Noll (215) 345-3327 EPA Emergency Response Section Jay Rodstein (215) 597-3152 Roy F. WESTON - TAT Greg Janiec, Peter Harnett (609) 663-7995

Roy F. Weston, Inc.

SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

In Association with ICF Inc., Jacobs Engineering Group Inc., C.C. Johnson & Associates, Inc., and Tetra Tech, Inc.,

Memorandum Dublin TCE Site September 15, 1986

Page Two

### LOCATION

Dublin Borough is located in northern Bucks County approximately 25 miles north of Philadelphia, PA (see location map attached). The Borough is bordered by Bedminster Township to the east and Hilltown Township to the west.

### POPULATION

Dublin Borough estimates (1986) there are 1,800 people living in the Borough.

### WATER AVAILABILITY

The physical characteristics of the Lockatong (dense rock) and Brunswick (overlapping shale) geologic formations limit the rate of groundwater recharge. <sup>1</sup> The recharge rate for the Dublin Borough is about 190,000 gallons per day. <sup>2</sup> Assuming an average daily demand of 100 gallons per person, the daily demand is approximately equal to the recharge rate.

According to Township historical drilling records, a perched water table may be intercepted as shallow as five feet beneath the surface. The more recently drilled, higher-yield wells exceed 300 feet in depth. Both shallow and deep wells appear to be contaminated with TCE. At this time, the average well is believed to be cased to approximately 30 feet.

- 1. Dublin Borough Comprehensive Plan, (September 1985) p. 18.
- 2. Dublin Borough Comprehensive Plan, (September 1985) p. 19.

The <u>Dublin Borough Comprehensive Plan</u> is available from the Dublin Borough Office. It is located at 119 Maple Avenue in Dublin, Pennsylvania.

GJ/PH:lal

Attachments

### DUBLIN TCE SITE INFORMATION SHEET BUCKS COUNTY, PENNSYLVANIA

### Trichloroethene (TCE)

Synonym:

Trichloroethylene

Common Uses:

Solvent used in degreasing, pharmaceutical, veterinary, disinfectant, dry cleaning, refrigerant and heat-exchange

liquid, organic synthesis, fumigant.

Properties:

Colorless, chloroform odor in air, specific gravity = 1.45 (heavier than water), solubility @  $25^{\circ}C$  = 1100 ppm (dissolves

in water).

Health Effects:

A suspect carcinogen; 2.7 ppb (parts per billion) is believed to represent an increased lifetime cancer risk of one in one

million.

Ten-Day Health Advisory = 200 ppb.

Proposed MCL (Maximum Concentration Limit) = 5 ppb.

Recommended Drinking Water Limit = 0 ppb.

Removal Methods:

1. Carbon filtration - TCE adsorbs to charcoal.

(from water)

2. Air stripping - TCE can be vaporized through a water aeration system and vented to the ambient air where the compound naturally decomposes.

### STATE AND COUNTY ACTIONS TO DATE

- Sixty-one (61) tap water samples have been analyzed to date. The TCE concentrations at the tap include: 25 samples with non-detectable levels of TCE; 12 samples with levels between 0 and 5 ppb; 12 samples with levels between 5 and 200 ppb; 11 samples with levels greater than 200 ppb, and one (1) sample which has TCE present, but the level has not been made available.
- 2. Thirty-seven (37) of the samples were taken by Pennsylvania Department of Environmental Resources personnel for analysis by the State. Twenty-four (24) were taken by private laboratories per the request of the homeowner.
- 3. For State water samples, the resident or business owner was first contacted by phone and later with a copy of the laboratory results along with a recommendation to use a charcoal treatment system should the level be at or above 5 ppb. At levels between 5 and 75 ppb charcoal treatment, boiling of water, and purchase of bottled water were suggested by phone; however, only charcoal treatment was suggested in follow-up letters.

Page No. 1 09/16/86			DUBLIN BUCKS C TAP WATER S	DUBLIN TCE SITE BUCKS COUNTY, PA				
NAME == >=	ADDRESS	WELL DEPTH, FEET	DATE	LAB	WATER USAGE	1CE	PCE	1,1,1- 1CE
MOYER FLOWER SHOP	138 N MAIN ST	280	08/04/86	DER	BW	50	Q.	QN
MYERS	126 N MAIN ST	NA	07/02/86	DER	BW	350	2	Ş
MOYER	152 ELEPHANT RD	525	08/04/86	DER	BN, SW	150	æ	<del>Q</del>
DUBLIN FAST TAG & NOTARY	105 N MAIN ST	NA	08/02/86	DER	ರ	27	2.0	S.
SCHWELL	149 N MAIN ST	NA A	07/15/86	90	сĭ	105	9	Q.
DUBLIN DINER	N MAIN ST	NA	06/26/86	O.	ರ	58.9	Ş	2.3
PASQUA	111 CHERRY LA	85	06/23/86	DER	dN	9	9	NO
SILEYMAKER	114 ELEPHANT RD	NA	07/01/86	PL	ď	S	æ	QN
DUBLIN VILLAGE PLAZA	161 N MAIN ST	NA	07/02/86	) <del>o</del>	ď	2	9	QN.
BINSBERGER	148 MAPLE AVE	130	06/26/86	DER	ď	Ş	9	ND
SUPPLEE	105 CHERRY LA	200	06/26/86	DER	d.N	2	욧	N Q
FRED BRITTON	3212 RICKERT RD	NA	07/07/86	ည္မ	dN	2	윷	QN
MARK FRANKLIN WELL #2	104 MIDDLE RD	23	98/60/60	DER	dN	æ	2	S
ROBERT OTT	105 MIDDLE RD	NA	07/15/86	PS	NP	2.1	æ	NO Qu
DAIRY QUEEN	N MAIN ST, MILL ST.	NA	06/26/86	DER	dN	1.0	ş	Ð
DUBLIN INN	101 S MAIN ST	26	98/60/60	DER	ďN	Q	2	S.
BOROUGH HALL	MAPLE AVE	NA	06/26/86	၁ဗ	dN	R	윷	ND
DUBLIN ACRES WELL #1	RICKERTS RD	¥¥	06/25/86	PS S	dN	3.2	Ş	QN QN
PA. STATE POLICE	RICKERTS RD	>560	06/26/86	DER	ď	9	웊	S
MRS CLARENCE MYERS	120 CHERRY LA	MA	06/26/86	90	ď	Q.	2	웊

2	
Page No. 09/16/86	

DUBLIN TCE SITE BUCKS COUNTY, PA TAP WATER SUMMARY SHEET

1,1,1- PCE TCE	ON ON	QN QN	QN QN	ON ON	ON ON	QN QN	QN QN	ON ON	QN QN	QN QN	ON ON	ON ON	ON ON	ON ON	ON ON	QN QN	ND 2.0	ON ON	ON ON	
10E	1.0	Q.	Q	Q	2.5	Q	Q	Q.	4.5	Q	2.2	QN	Q	QN	9	Q	QN	1.0	1.0	
WATER USAGE =====	ď	ď	ď	ďN	ďN	ďN	dN	М	М	ď	dN	М	МР	ď	ď	ď	ď	ď	ď	
LAB	DER	DER	PS	၁ဗ	DER	Ö	ည္မ	ည္မ	DER	ည္မ	DER	20	Ы	DER	PS	DER	DER	DER	DER	
DATE	' '	08/02/86	06/23/86	06/27/86	07/15/86	06/23/86	06/26/86	06/26/86	07/02/86	06/27/86	07/02/86	06/23/86	07/01/86	08/02/86	06/25/86	98/60/60	06/26/86	07/02/86	08/04/86	
WELL DEPTH, FEET	400	130	NA	NA A	100	140	NA V	NA	NA	NA	NA A	NA	NA	NA	NA A	315	NA	300	100	
ADDRESS	152 ELEPHANT RD	115 CHERRY ST	CHERRY LA	126 MIDDLE RD APT #D2	194 N MAIN ST	130 N MAIN ST	115 ELEPHANT RD.	MAPLE AVE	112 N MAIN ST	126 MIDDLE RD APT #A2	116 N MAIN ST	CHERRY ST	163 N MAIN ST	120 MAPLE AVE	RICKERTS RD	104 MIDDLE RD	112 MAPLE AVE	142 N MAIN ST	215 FRONTIER RD	
NAME ====	RUSH	ALLEN	DUBLIN VILLAGE APTS.	WOODS EDGE APARTMENTS	DUBLIN FIRE COMPANY	MOYER AUTO BODY	GRACE	KULP	RHINES GULF	WOODS EDGE APARTMENTS	HANSEL	GARY MOYER	SILEYMAKER	STILLINGA	DUBLIN ACRES WELL #2	MARK FRANKLIN WELL #1	DUDLEY SPORTS OFFICE	FIRST FEDERAL BANK	HARRIS	

page no. 09/16/86			DUBLIN TCE SITE BUCKS COUNTY, PA TAP WATER SUMMARY SH	CE SITE KUNTY, PA MMARY SHEET				
NAME	ADDRESS	WELL DEPTH, FEET	DATE	LAB	WATER USAGE	10E	PCE	1,1,1- 10E
BUNTING	170 N MAIN ST	¥	08/04/86	DER	dN	3.7	Ş	Ş
IRMA DETWEILER	150 ELEPHANT RD	290	98/60/60	DER	dN	2.0	Q.	€
DOYLESTOWN FED S & L	174 N MAIN ST	NA	06/23/86	DER	TX.	7.8	2	ş
BLACK	116 ELEPHANT RD	NA	08/02/86	DER	TN.	5.6	2	ş
DUBLIN GARAGE	139 N MAIN ST	300	08/04/86	DER	AS.	17	£	웃
BARBARA FLUCK	128 N MAIN ST	Y.	07/15/86	20	AS.	217	윷	9
THOMPSON PLANT WELL #2	120 MILL ST	80	06/23/86	DER	AS.	100	9	~
THOMPSON PLANT WELL #1	120 MILL ST	80	06/23/86	DER	ns.	2000	8.6	22
EMICO INC WELL #1	123 N HAIN ST	300	06/23/86	DER	AS.	360	1.0	3.8
BOYLE	115 N MAIN ST	KA	08/02/86	DER	AS.	07	9	<b>£</b>
ROBERT RUFE	122 N MAIN ST	250	07/02/86	DER	AS.	250	9	Ş
BUCKS COUNTY BANK	CHERRY LA	NA	06/26/86	<b>0</b> C	ns.	242	9	웊
THOMPSON PLANT WELL #1	120 MILL ST	80	07/15/86	DER	ns.	10000	Ş	52
EMICO INC WELL #2	123 H MAIN ST	300	06/23/86	DER	AS.	200	Q.	5.9
TERRY HINSDALE	113 H MAIN ST	¥.	07/15/86	ΑP	AS.	4.6	웆	
FARM BUREAU	104 MILL ST	300	06/26/86	DER	SI4*	1000	1.4	0.9
WHISTLEWOOD APTS	APT #107 M. MAIN	300	06/17/86	DER	SW, AS	200	Ş	9
WHISTLEWOOD APTS	APT # 107 N. HAIN	300	06/11/86	DER	SM, AS	420	ş	m
DETWEILER	153 N MAIN ST	¥¥	07/15/86	占	25	*	Ş	2
BUCHANAN	117 N MAIN ST	¥	07/15/86	P.	22	15	Q.	Q.

Page No. 09/16/86

DUBLIN TCE SITE BUCKS COUNTY, PA TAP WATER SUMMARY SHEET

TCE	## ## ## ## ## ## ## ##	9
PCE	10 31 10	1.0
TCE	# !! #	19.3
USAGE	)2 10 10 11 14	3
CAB	H H	7
DATE	H H H	07/11/86
FEET	10 14 14 14 14	YX
ADDRESS	16 16 16 16 16 16 16	119 N HAIN ST
XAME	le 11 14 16	HIRST
	ADDRESS FEET DATE LAB USAGE TCE PCE	NAME ADDRESS FEET DATE LAB USAGE TCE PCE TCE TCE TCE TCE TCE TCE TCE TCE TCE T

All levels are in parts per billion (ppb) for each compound listed above.

SW - Mr. Scott Tyson of the Farm Bureau did mention that employee's wash with water from tap. Note: This level is greater than 500 ppb level of TCE, which County recommended no washing with water. Mrs. Detweiler had a private laboratory do analysis but chose not to give TCE level to County.

# Water Usage Abbreviations

Supplied water is used for drinking (purchased, supplied).

Air stripper is in operation.

Non-problematic level of TCE.

No treatment, water is used for drinking.

Charcoal treatment system is in operation.

Water is boiled before drinking. Unable to contact party. NP NT CT CT CT CT CT

## Other Abbreviations

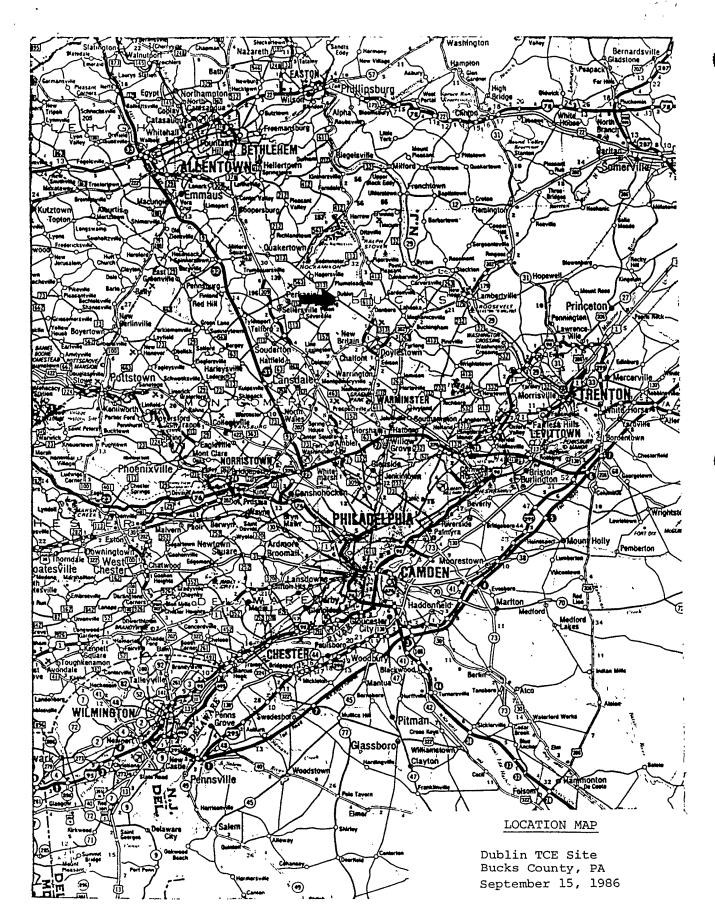
Parts per billion.

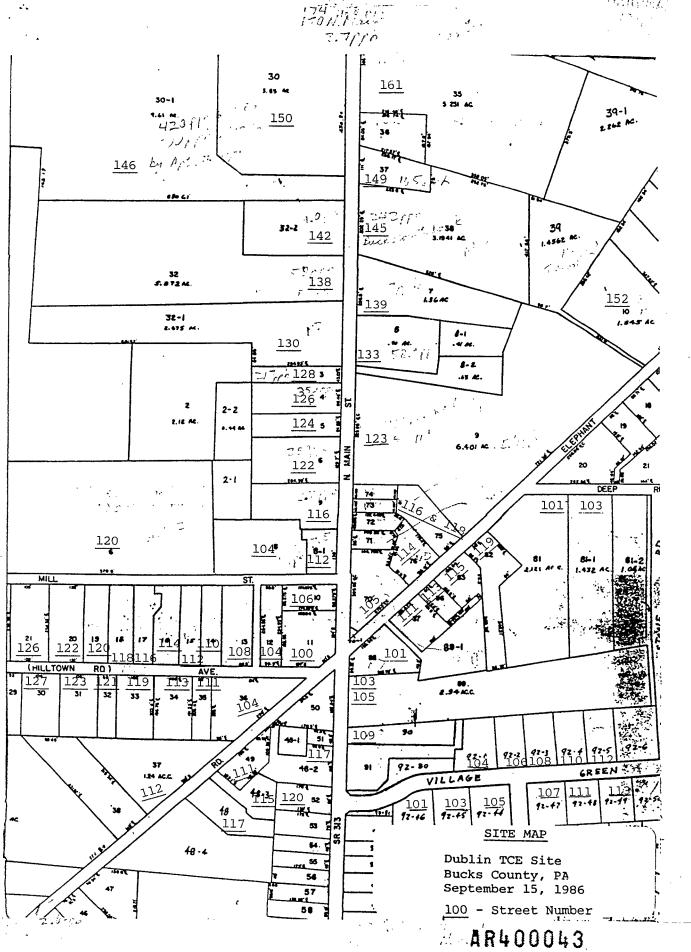
Pennsylvania Department of Environmental Resources Laboratory. Non-detectable level. DER

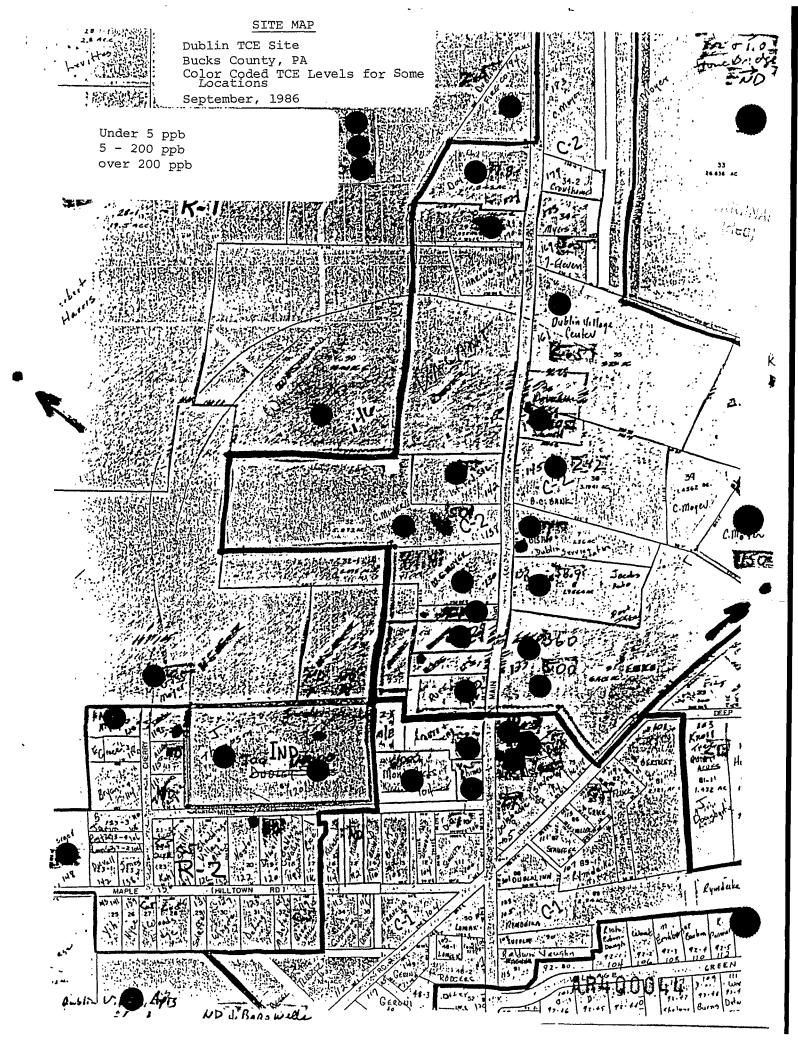
Quality Control Laboratory.

Purity Standard Laboratory. Aqua Pure Laboratory.

Private laboratory, resident did not supply name of laboratory.







TREAT!

### BIBLIOGRAPHY

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  Industrial Waste, Third Symposium, ASTM, STP 851, p. 24-31, 1984.
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APPENDIX IV

### GROUNDWATER MONITORING WELL GUIDALINES

### Dublin TCE Sice Dublin, Bucks County, PA

### Scope

The purpose of this proposed groundwater monitoring system is to identify and quantify TCE contamination at the Dublin TCE Site. This document provides the construction and material specifications to govern the construction of all groundwater monitoring wells associated with the Dublin TCE Site.

### Well Specifications

The following specifications and descriptions shall be adhered to in the construction of all groundwater monitoring wells installed as related to the Dublin TCE Site in Dublin, Bucks County, Pennsylvania. The wells must allow for the collection of a sample representative of the groundwater flow in its area.

All monitoring wells will be drilled in the presence of a representative of the Pennsylvania Department of Environmental Resources. Any changes in these procedures must be cleared through the Emergency Response Division of EPA, Region III.

- a) Protective casing this outer casing shall be new steel line pipe extending a minimum of 8 feet. This protective casing shall be six inches (6") in diameter.
- b) Well casing the well casing shall be new FVC piping with an inside diameter of four inches (4"). Only flush threaded coupling shall be used. No glues or adhesives will be used in the well construction.
- c) Screening screening shall consist of new factory constructed PVC with 0.050-inch openings.
- d) Packing material this material shall consist of clean, washed and uniform grains such that 85% can pass through a 1/2-inch sieve and <15% can pass through a 0.187-inch sieve. No crushed limestone or dolomite shall be used.
- e) Grout this material shall be a mixture of cement (94 lbs.) to not more than 6 gallons of water.
- f) Well collar shall be constructed of cemeut concrete as an antipercolation device.

### Well Construction

Wells shall be drilled to allow the placement of the six-inch (6") protective casing. This casing shall extend one foot above ground level and 7 feet below the ground level. A protective cap will be inscalled, constructed of metal which can be secured with a security lock. The remainder of the well shall be drilled to allow for the placement of the four-inch (4") PVC casing. Well casing shall continue through solid rock unless specified by EPA or State representative.

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Groundwater Monitoring Well Guidelines Dublin TCE Site, Bucks County, PA.

### Well Construction (continued)

Splitspoon sampling will be performed at 24-inch intervals. The EPA or State representative will indicate the depth to terminate each well based on observations of the splitspoon sampling. The contractor shall not drill more than 75 feet without written permission from the Emergency Response Division of EPA Region III. Well screening will be installed ten feet (10') below the existing groundwater level and to the level of the seasonal high water level or as specified by the EPA or State representative.

All void space between the screening and the hole wall shall be filled with the specified packing material to a level of one foct above the well screen. The remainder of the void space from the top of the packing material to well collar shall be filled with grouting material.

A well collar shall be installed around each well from the surface to a depth of three feet (3'). This structure is to force rainfall and surface runoff away from the well casing. The outer edges should be smooth and parallel to the well casing to prevent movement from frost heave.

During and after well drilling operations, the contractor shall guard against contaminating the well with any foreign materials or compounds. Any contamination due to neglect will be repaired at the contractor's expense.

### Monitoring Procedures

The drilling contractor or his representative shall keep a hardbound drilling log of all holes drilled at Dublin TCE Site. Detailed notes of soil structure and water flow will be recorded. This log may be dispected by the EPA or State representative at any time during the drilling process. At the termination of the well installation project, the drilling log shall be relinquished to the EPA representative.



Suite 3, 5090 Central Highway, Pennsauken, NJ 08109 ● (609) 663-7995

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION EPA CONTRACT 68-01-6669 DUBLIN TCE

SCOPE OF WORK
9/18/86

### Introduction

As requested by the EPA Emergency Resonse Section, the Roy F. WESTON, Inc., Technical Assistance Team has developed the following scope of work to identify the source, extent of contamination and clean-up techniques as associated with the TCE contamination of groundwater in Publin, Bucks County, PA.

### Background

Dublin Borough is located in northern Bucks County approximately 25 miles north of Philadelphia, PA (see location map attached). The Borough is bordered by Bedminster Township to the east and Hilltown Township to the west. There are presently an estimated 1,800 people living in the Dublin Borough.

During a routine drinking water survey, the Bucks County Health Department discovered elevated levels of trichloroethene (TCE) in tap water samples obtained from the Dublin Borough area (see Appendix 1). The borough water supply primarily consists of private and public wells. Elevated TCE levels (greater than 5 ppb) have been located in approximately 170 homes, apartments and businesses affecting approximately 500 residents. It is worth noting that Whistlewood Apartments has 144 units. As such, many of the estimated 500 affected residents live here.

The Bucks County Health Department has issued advisories to the public regarding water usage in which they recommended installation of a carbon filter system for levels of TCE above 5 ppb. For levels above 500 ppb of TCE, they cautioned residents not to bathe with this water.

The EPA Region III Emergency Response Section received the Bucks County Health Department data for evaluation on September 3, 1986. The OSC and his technical staff determined the current water usage status of all residential and public wells which were determined to have elevated levals of TCE. A meeting between EPA, Roy F. WESTON, Inc., Technical Assistance Team (TAT), and Bucks County Health Department was held on September 12, 1986, to obtain additional information in order to develop a coordinated approach by the respective agencies.

This scope of work has been divided into three distinct phases. Phase I will attempt to identify the source of the TCE contamination in the borough of Dublin. Currently, the suspected source is a small industrial facility located at 120 Mill Street (see Appendix 2). The associated well has been found to contain TCE levels of 10,000 ppb which represents the highest level of contamination discovered in the borough to date. A County Health Department investigation has documented TCE usage during previous ownership of the property.

Roy F. Weston, Inc.
SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

AR400049

Dublin TCE - Scope of Work Page -2-

To further determine the source of contamination, it is proposed that the TAT and EPA Environmental Response TEAM (ERT) will perform an investigation focused on 120 Mill Street using soil gas techniques outlined in Appendix 3. Soil gas loci determination will be formulated both in response to surface conditions and accumulated data. A concurrent information search will be conducted by EPA and TAT personnel to better define alternate potential sources and responsible parties. Phase I is to be completed in ten days from the official start-up.

Phase II will attempt to define the extent of contamination. Based on the soil gas data from Phase I, monitoring wells or test pits will be installed to determine the dimensions of any contaminant plume. The monitoring well placement will be based on hydrogeologic data and technical input from the County Health Department, PADER and EPA personnel. These monitoring wells will be developed according to the guidelines outlined in Appendix 4 to facilitate their possible use during a possible recovery project. Phase II will be completed in 21 days following the conclusion of Phase I operations.,

Phase III will consist of the installation of a water treatment system and/or the removal/treatment of any source of TCE contamination. The methodology employed will be formulated based on the data collected during Phase I and Phase II operations. At the present time air stripping, excavation and microbial treatment are being considered as possible clean-up strategies.

APPENDIX I

DUBLIN TCE SITE
BUCKS COUNTY, PA
TAP WATER SUMMARY SHEET

XXXE	ADDRESS	WELL DEPTH, FEET	DATE	L LAB	WATER	ជី	P	1,1,1· TCE
MYERS	126 N HAIN ST	¥ 2	07/02/86	DE R	55 E	350	8 8	<b>3</b> 8
MOYER	152 ELEPHANT RD	225	00/04/14	DER	BW, SW	150	8	8
DUBLIK FAST TAG & NOTARY	105 N NAIN ST	ř.	f6/05/86	DER	ÇŢ	27	2.0	75
SCHMELL	149 N MAIN ST	*	07/15/86	និ	ဌ	<b>5</b>	ੜ	3
DUBLIN DINEX	N MAIN ST	*	06/26/86	8	CŢ	£.9	ð	2.3
PASOUA	111 CHERRY LA	8	06/23/86	DER	¥	3	ĕ	5
SILEYMAKER	114 ELEPHANT RD	×	07/01/86	<b>P</b>	¥	3	<b>ક</b>	8
DUBLIN VILLAGE PLAZA	161 N MAIN ST	\$	07/02/86	ឥ	ž	*	3	8
BINSBERGER	148 MAPLE AVE	130	06/26/86	DER	NP.	ð	종	8
SUPPLEE	105 CHERRY LA	200	06/26/86	DER	P	8	ð	8
FRED BRITTON	3212 RICKERT RD	₹.	07/07/86	ਨ	¥	3	3	8
MARK FRANKLIN WELL #2	104 MIDDLE RD	8	09/09/86	DER	*5	8	종	ŧ
ROBERT OTT	105 MIDDLE RD	\$	07/15/86	PS	¥	2.1	8	8
DAIRY QUEEN	N MAIN ST, MILL ST.	\$	06/26/86	DER	NP.	1.0	*	ਝ
DUBLIN INN	101 S HAIN ST	š	09/09/86	DER	¥	8	8	'ਵ
BOROUGH HALL	MAPLE AVE	*	06/26/86	ន	¥	ð	8	3
DUBLIN ACRES WELL #1	RICKERTS RD	¥	06/25/86	P\$	¥	3.2	8	3
PA. STATE POLICE	RICKERIS RD	>560	06/26/86	DER	¥	ŧ	ਝ	ਝ
HRS CLARENCE HYERS	120 CHERRY LA	*	06/26/86	క	ŧ	*	3	5

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WATER	BUCKS	המפרוש
SUMMARY	COUNTY,	A ICE STIE
SHEET	PA	ī

HERRILL HEYERS	HARRIS	FIRST FEDERAL BANK	DUDLEY SPORTS OFFICE	MARK FRANKLIN WELL #1	DUBLIN ACRES WELL #2	STILLINGA	SILEYHAKER	GARY HOYER	HANSEL	WOODS EDGE APARTMENTS	RHINES GULF	אטרא	GRACE	MOYER AUTO BODY	DUSLIN FIRE COMPANY	MIXOS EDGE APARTHENTS	DURLIN VILLAGE APTS.	ALLEN	RUSH	HAN
139 ELEPHANT RD	215 FRONTIER RD	142 N MAIN ST	112 HAPLE AVE	104 MIDDLE RD	RICKERTS RD	120 HAPLE AVE	163 N MAIN ST	CHERRY ST	116 N MAIN ST	126 HIDDLE RO APT #A2	112 N MAIN ST	HAPLE AVE	115 ELEPHANT RD.	130 M MAIN ST	194 N NAIN ST	126 MIDDLE RD APT #02	CHERRY LA	115 CHERRY ST	152 ELEPHANT RD	ADDRESS
245	8	300	¥	315	\$	\$	\$	\$	\$	¥	\$	¥	¥	140	100	Ž	¥	130	400	WELL DEPTH, FEET
09/09/86	08/04/86	07/02/86	06/26/86	09/09/86	06/25/86	08/05/86	07/01/86	06/23/86	07/02/86	06/27/86	07/02/86	06/26/86	06/26/86	06/23/86	07/15/36	06/27/86	06/23/86	08/05/86	' '	DATE
DER	DER	DER	DER	DER	<b>P</b>	DER	2	8	DER	8	DER	8	8	8	DER	8¢ (	PS	DER	DER	LAB
Ą	¥	\$	\$	¥	*	NP	¥	¥	¥	Ą	¥	¥	K P	Ą	Ϋ́P	¥ P	NP.	NP	¥	WATER USAGE
1.3	1.0	1.0	3	8	8	ਝ	3	8	2,2	8	<b>5.</b>	8	3	8	2.5	3	\$	3	1.0	T CE
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DEFT			HELL						
170 M MAIN ST   NA 08/04/86   DER   NP   3.7	HAME	ADORESS	FEET FEET		LAB	USAGE	301	P C M	1,1,1. TOE
GETWEILER         170 N MAIN ST         NA         08/04/86         DER         NP         3.7           RTOAM FED. S.3 L         174 N MAIN ST         AA         08/05/06         DER         NP         2.0           RTOAM FED. S.3 L         174 N MAIN ST         NA         08/23/06         DER         NT         7.8           ROAK ICE         139 N MAIN ST         300         03/05/06         02R         ST         5.6           LOAK ICE         139 N MAIN ST         300         05/05/06         02R         ST         25           LOAK ICE         139 N MAIN ST         80         05/23/06         02R         SU         217           COM PLANT MEIL #2         120 NILL ST         80         06/23/06         02R         SU         217           COM PLANT WEIL #1         120 NILL ST         80         06/23/06         02R         SU         200           INC WEIL #1         120 NILL ST         80         06/23/06         02R         SU         250           COUNTY BANK         CHERRY LA         NA         06/05/06         02R         SU         242           COUNTY BANK         CHERRY LA         NA         06/23/06         02R         SU         242	1113	***************************************	*****	M M M	14	0E 10 14 10	**	Ë	M M M M
ETWEILER         150 ELEPHANI RD         290         09/09/86         DER         NP         2.0           HOAR JED S.3 L         174 N MAIN ST         NA         06/23/86         DER         NIT         7.8           LOAR JOS JER         116 ELEPHANI RD         NA         06/23/86         DER         NIT         5.6           LOAR JOS JER         239 N MAIN ST         300         03/05/86         DER         31         17           CON PLANT VELL #2         120 MILL ST         80         06/23/86         DER         SU         500           CON PLANT VELL #1         120 MILL ST         80         06/23/86         DER         SU         500           INC VELL #1         123 N MAIN ST         NA         08/05/86         DER         SU         360           COUNTY BANK         CHERRY LA         NA         08/05/86         DER         SU         250           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         SU         260           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         SU         250           COUNTY BANK         CHERRY LA         80         07/15/86         DER         SU         262 </td <td>BUNTING</td> <th>170 N MAIN ST</th> <td>¥</td> <td>08/04/86</td> <td>DER</td> <td>¥</td> <td>3.7</td> <td>동</td> <td>8</td>	BUNTING	170 N MAIN ST	¥	08/04/86	DER	¥	3.7	동	8
TICKIN FED R 3 L         174 N MAIN ST         NA         06/23/86         DER         NT         7.8           I GARRIGE         136 ELEPHANT RD         NA         08/05/86         6/ER         NT         5.6           I GARRIGE         139 N MAIN ST         300         09/04/86         6/ER         31         5.6           A FLUCK         123 N MAIN ST         80         05/23/86         DER         51         50           ON PLANT WELL #1         120 NILL ST         80         06/23/86         DER         51         500           INC WELL #1         123 N MAIN ST         300         06/23/86         DER         51         500           RUFE         122 N MAIN ST         250         07/02/86         DER         51         30           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         51         30           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         51         25           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         51         26           COUNTY BANK         130 NAIN ST         300         06/23/86         DER         51         50 <t< td=""><td>IRMA DETWEILER</td><th>150 ELEPHANT RO</th><td>290</td><td>09/09/86</td><td>DER</td><td>Z,</td><td>2.0</td><td>ĕ</td><td>5</td></t<>	IRMA DETWEILER	150 ELEPHANT RO	290	09/09/86	DER	Z,	2.0	ĕ	5
116 ELEPHANT RD 139 N MAIN ST 139 N MAIN ST 128 N MAIN ST 2120 NILL ST 250 PLANT VELL #2 123 N MAIN ST 251 PART ST 250 PLANT VELL #1 123 N MAIN ST 250 PLANT ST 250 PLANT VELL #1 123 N MAIN ST 250 PLANT SS 260 PLR 260	DOYLESTOWN FED S 1 L	174 N MAIN ST	¥	06/23/86	PER	XT	7.8	š	8
H GARRIGE         139 N MAIN ST         300         03/04/06         DER         514         97           RA FLUCIX         128 N MAIN ST         ,NA         C7/15/26         QC         SU         217           SON PLANT VELL #2         120 NILL ST         80         06/23/86         DER         SU         100           SON PLANT VELL #1         120 NILL ST         80         06/23/86         DER         SU         500           INC VELL #1         122 N MAIN ST         NA         05/05/86         DER         SU         250           COUNTY BANK         CHERRY LA         NA         06/23/86         DER         SU         250           SON PLANT WELL #1         120 MILL ST         80         07/02/86         DER         SU         250           COUNTY BANK         CHERRY LA         NA         06/26/86         DER         SU         250           SON PLANT WELL #1         120 MILL ST         80         07/15/86         DER         SU         250           SON PLANT WELL #1         120 MILL ST         80         07/15/86         DER         SU         242           SON PLANT WELL #1         120 MILL ST         80         07/15/86         DER         SU	BLACK	116 ELEPHANT RD	×	08/05/86	CER	3	5.6	8	8
RA FLUEX     128 N MAIN ST     NA     C7/15/26     QC     SU     217       SON PLANT WELL #2     120 MILL ST     80     06/23/86     DER     SU     100       SON PLANT WELL #1     120 MILL ST     80     06/23/86     DER     SU     5000       INC WELL #1     123 N MAIN ST     300     06/23/86     DER     SU     360       T RUFE     115 N MAIN ST     250     07/02/86     DER     SU     250       COUNTY BANK     CHERRY LA     NA     06/26/86     DER     SU     250       SON PLANT WELL #1     120 MILL ST     80     07/15/86     DER     SU     250       SON PLANT WELL #1     120 MILL ST     80     07/15/86     DER     SU     250       SON PLANT WELL #1     120 MILL ST     80     07/15/86     DER     SU     250       SON PLANT WELL #1     120 MILL ST     80     07/15/86     DER     SU     242       SON PLANT WELL #1     130 MAIN ST     NA     07/15/86     DER     SU     29.4       HINSDALE     113 N MAIN ST     NA     07/15/86     DER     SU, AS     500       LEWOOD APTS     APT #107 N. MAIN     300     06/11/86     DER     SU, AS     420	DUBLIN GARAGE	139 N PAIN ST	300	98/24/86	200	SI .	17	8	8
SON PLANT VEILL #2         120 MILL ST         80         06/23/86         DER         SU         100           SON PLANT VEILL #1         120 MILL ST         80         06/23/86         DER         SU         5000           INC VEILL #1         123 M MAIN ST         300         06/23/86         DER         SU         360           1 T RUFE         115 M MAIN ST         250         07/02/86         DER         SU         250           1 COUNTY BANK         CHERRY LA         NA         06/26/86         DER         SU         242           SON PLANT WEILL #1         120 MILL ST         80         07/15/86         DER         SU         242           SON PLANT WEIL #1         123 M MAIN ST         300         06/26/86         DER         SU         242           SON PLANT WEIL #1         120 MILL ST         300         06/23/86         DER         SU         200           INC WEIL #2         123 M MAIN ST         NA         07/15/86         DER         SU         9.4           BUREAU         104 MILL ST         300         06/17/86         DER         SU, AS         500           LEMCOD APIS         APT #107 N. MAIN ST         100         06/11/86         DER	BARBARA FLUCK		X XX	07/15/26	8	SI.	217	ð	8
SOM PLANT WELL #1         120 MILL ST         80         06/23/86         DER         SU         5000           INC WELL #1         123 M MAIN ST         300         06/23/86         DER         SU         360           IT RUFE         115 M MAIN ST         NA         08/05/86         DER         SU         250           COUNTY BANK         CHERRY LA         NA         06/26/86         DER         SU         250           SINC WELL #1         120 MILL ST         80         07/15/86         DER         SU         242           SINC WELL #2         123 M MAIN ST         NA         07/15/86         DER         SU         200           HINSDALE         113 M MAIN ST         NA         07/15/86         DER         SU         500           BUREAU         104 MILL ST         300         06/23/86         DER         SU         9.4           LEMOOD APTS         APT #107 M. MAIN         300         06/17/86         DER         SU, AS         500           ILEMOOD APTS         APT #107 M. MAIN ST         NA         07/15/86         DER         SU, AS         500           ILEMOOD APTS         APT #107 M. MAIN ST         NA         07/15/86         PL         UC	THOMPSON PLANT WELL #2		8	06/23/86	DER	SE	<b>1</b> 00	ਣ	2
INC WELL #1     123 N MAIN ST     300     06/23/86     DER     SW     360       T RUFE     115 N MAIN ST     NA     03/05/86     DER     SW     40       COUNTY BANK     CHERRY LA     NA     05/26/86     DER     SW     250       SOM PLANT WELL #1     120 MILL ST     80     07/15/86     DER     SW     242       SOM PLANT WELL #2     123 N MAIN ST     NA     05/23/86     DER     SW     500       INC WELL #2     123 N MAIN ST     NA     07/15/86     DER     SW     500       BUREAU     104 HILL ST     300     06/23/86     DER     SW     500       LEMOOD APTS     APT #107 N. MAIN     300     06/17/86     DER     SW, AS     500       LEMOOD APTS     APT #107 N. MAIN ST     NA     07/15/86     PL     UC     *       LEMOOD APTS     APT #107 N. MAIN ST     NA     07/15/86     DER     SW, AS     500       LEMOOD APTS     APT #107 N. MAIN ST     NA     07/15/86     PL     UC     *       112 N MAIN ST     NA     07/15/86     PL     UC     *	THOMPSON PLANT WELL #1	120 MILL ST	8	06/23/86	DER	SE	5000	8.6	27
T RUFE 115 N MAIN ST NA 08/05/86 DER SY 40 COUNTY BANK CHERRY LA NA 05/26/86 DER SY 250 COUNTY BANK CHERRY LA NA 06/26/86 DER SY 250 COUNTY BANK CHERRY LA NA 06/26/86 DER SY 250 COUNTY BANK CHERRY LA NA 06/26/86 DER SY 262 COUNTY BANK 120 MILL ST 80 06/23/86 DER SY 500 CHIC WELL #2 123 N MAIN ST NA 07/15/86 DER SY 500 CHIC WELL #2 123 N MAIN ST NA 07/15/86 DER SY 500 CHIC WELL #3 107 N. MAIN 300 06/17/86 DER SY 500 CHEMODO APTS APT #107 N. MAIN 300 06/17/86 DER SY, AS 500 CHEMODO APTS 153 N MAIN ST NA 07/15/86 PL UC 15	ENICO INC WELL #1	123 N MAIN ST	300	06/23/86	DER	NS WS	360	1.0	3. 8
FE         122 N MAIN ST         250         07/02/86         DER         SU         250           NITY BANK         CHERRY LA         NA         06/26/86         QC         SM         242           PLANT WELL #1         120 MILL ST         80         07/15/86         DER         SM         10000           WELL #2         123 N MAIN ST         NA         07/15/86         DER         SM         500           SDALE         113 N MAIN ST         NA         07/15/86         DER         SM         9.4           AD         104 MILL ST         300         06/23/86         DER         SM         9.4           AD         104 MILL ST         300         06/26/86         DER         SM         9.4           AD         401 #107 N. MAIN         300         06/17/86         DER         SM, AS         500           CD         APT #107 N. MAIN         300         06/11/86         DER         SM, AS         420           CD         153 N MAIN ST         NA         07/15/86         PL         UC         *	BOYLE	115 N MAIN ST	×	08/05/86	DER	AS	40	ð	5
NTY BANK CHERRY LA NA 06/26/86 QC SW 242  PLANT WELL #1 120 MILL ST 80 07/15/86 DER SW 10000  WELL #2 123 M MAIN ST NA 07/15/86 DER SW 500  SDALE 113 M MAIN ST NA 07/15/86 DER SW 9.4  GO APTS APT #107 N. MAIN 300 06/26/86 DER SW, AS 500  CO APTS APT #107 N. MAIN 300 06/11/86 DER SW, AS 500  TS N MAIN ST NA 07/15/86 PL UC 15	ROBERT RUFE	122 N HAIN ST	250	07/02/86	DEM	AS.	250	ð	ð
PLANT WELL #1         120 MILL ST         80         07/15/86         DER         SM         1000           WELL #2         123 M MAIN ST         300         06/23/86         DER         SM         500           SDALE         113 M MAIN ST         NA         07/15/86         AP         SM         9.4           ADI         #107 M. MAIN         300         06/26/86         DER         SM         1000           CD APTS         APT #107 M. MAIN         300         06/11/86         DER         SM, AS         500           CD APTS         APT #107 M. MAIN ST         NA         07/15/86         PL         UC         *           153 M MAIN ST         NA         07/15/86         PL         UC         15	BUCKS COUNTY BANK	CHERRY LA	×	06/26/86	ន	S.	242	₹	ð
WELL #2         123 M MAIN ST         300         06/23/86         DER         SW         500           SDALE         113 M MAIN ST         NA         07/15/86         AP         SW*         9.4           AU         104 MILL ST         300         06/26/86         DER         SW*         1000           GD APTS         APT #107 N. MAIN         300         06/11/86         DER         SW, AS         500           GD APTS         APT #107 N. MAIN         300         06/11/86         DER         SW, AS         420           GD APTS         153 M MAIN ST         NA         07/15/86         PL         UC         *           117 N MAIN ST         NA         07/15/86         PL         UC         15	THOMPSON PLANT WELL #1	120 HILL ST	8	07/15/86	DER	SE.	10000	중	23
SDALE         113 M MAIN ST         NA         07/15/86         AP         SW*         9.4           AU         104 MILL ST         300         06/26/86         DER         SW*         1000           CD APTS         APT #107 N. MAIN         300         06/11/86         DER         SW, AS         500           CD APTS         APT #107 N. MAIN ST         NA         07/15/86         PL         UC         *           117 N MAIN ST         NA         07/15/86         PL         UC         15	EHICO INC WELL #2	123 H MAIN ST	300	06/23/86	DEX	NS NS	500	3	5.9
AU 104 MILL ST 300 06/26/86 DER SH* 1000  CD APTS APT #107 N. MAIN 300 06/17/86 DER SH, AS 500  CD APTS APT # 107 N. MAIN 300 06/11/86 DER SH, AS 420  T153 N MAIN ST NA 07/15/86 PL UC *  117 N MAIN ST NA 07/15/86 PL UC 15	TERRY HINSDALE	113 N HAIN ST	×	07/15/86	₹	SA	4.6	3	*
OD APTS APT #107 N. MAIN 300 06/17/86 DER SH, AS 500 OD APTS APT # 107 N. MAIN 300 06/11/86 DER SH,AS 420 153 N MAIN ST NA 07/15/86 PL UC * 117 N MAIN ST NA 07/15/86 PL UC 15	FARM BUREAU	104 HILL ST	<b>300</b>	06/26/86	DER	SF.	1000	7.4	6.0
OD APTS APT # 107 N. MAIN 300 06/11/86 DER SH,AS 420 153 N MAIN ST NA 07/15/86 PL UC + 117 N MAIN ST NA 07/15/86 PL UC 15	NHISTLEWOOD APTS	APT #107 N. MAIN	300	06/17/86	DER	SH, AS	500	5	5
153 M MAIN ST NA 07/15/86 PL UC +	WHISTLEWOOD APTS	APT # 107 N. HAIN	300	06/11/86	DER	SN, HS	420	8	u
117 M MAIN ST NA 07/15/86 PL UC 15	DETWEILER	153 H MAIN ST	\$	07/15/86	<b>P</b>	ក	*	3	3
	BUCHANAN	117 N HAIN ST	¥	07/15/86	`PI	ក	댸	8	3

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### BUCKS COUNTY, PA TAP WATER SUMMARY SHEET DUBLIN TCE SITE

XIRST	# 25 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
119 M MAH M 911	ADORESS
ž	VELL FEET
07/11/86	DATE
7	# 50 # 5>
ક	VATER
19.3	TCE
1.0	PCE
ð	1, 1, 1. TCE

All levels are in parts per billion (ppb) for each compound listed above. "

Note: This level is greater than 500 ppb level of TCE, which County recommended no washing with water. 5% - Mr. Scott Tyson of the Farm Bureau did mention that employees wash with water from tap.

Mrs. Detweiler had a private laboratory do analysis but chose not to give TCE level to County.

## Water Usage Abbreviations

Supplied water is used for drinking (purchased, supplied).

Air stripper is in operation.

Non-problematic level of TCE.

No treatment, water is used for drinking.

Z ¥ S

Charcoal treatment system is in operation.

Unable to contact party. Water is boiled before drinking.

### Other Abbreviations

Parts per billion.

Non-detectable level.

S BER Pennsylvania Department of Environmental Resources Laboratory.

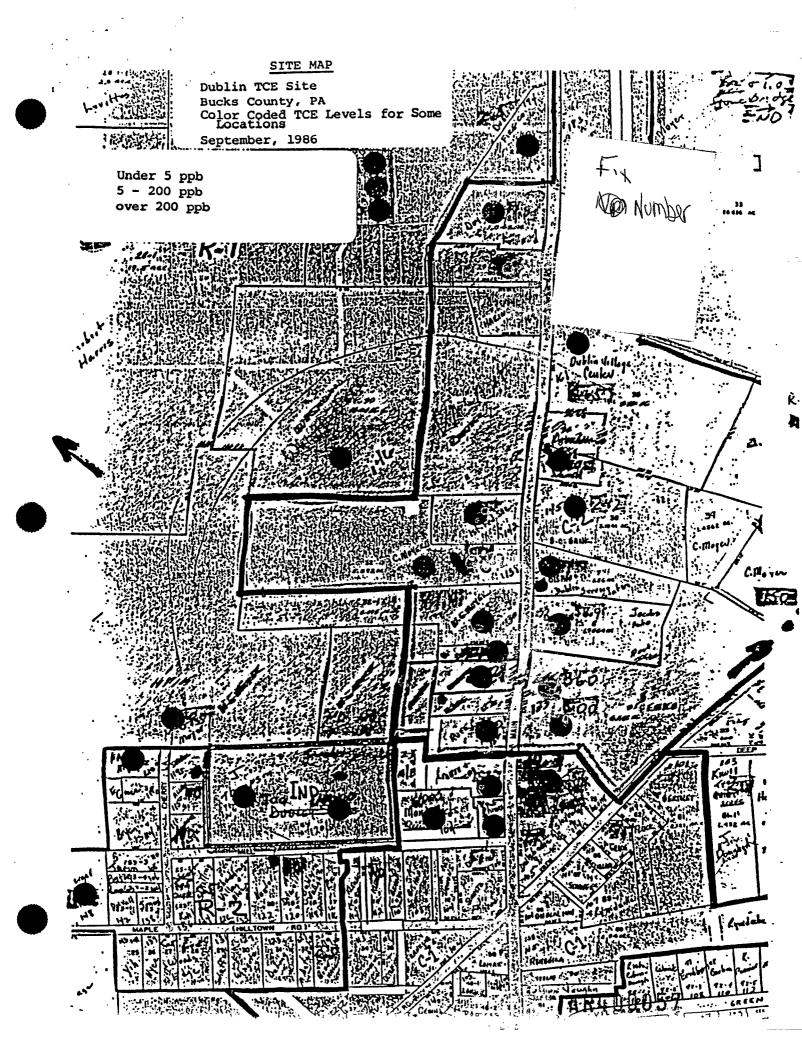
Quality Control Laboratory.

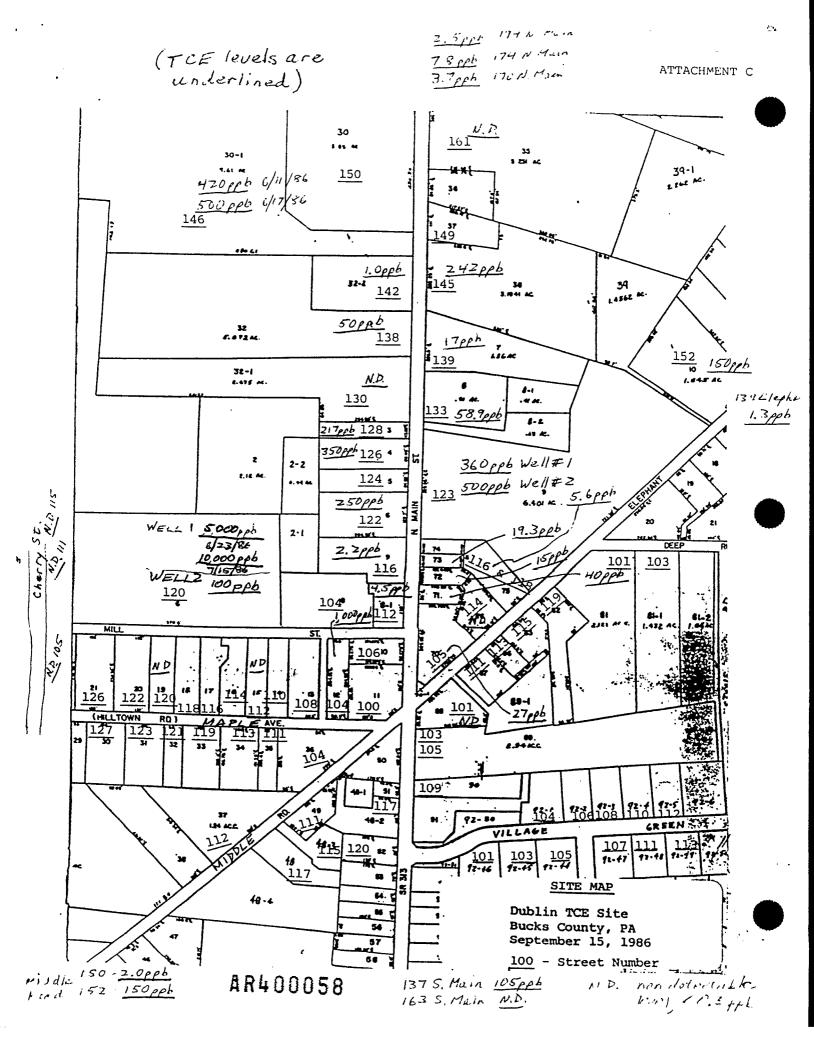
Purity Standard Laboratory.

Aqua Pure Laboratory.

Private laboratory, resident did not supply name of laboratory.

APPENDIX II







### D. Reagent Blank Summary (Form IV)

This form is used to report the concentrations of both HSL and non-HSL compounds detected in the laboratory reagent blank(s).

The laboratory should complete all the header information including Laboratory name, Case number, contract number, sample matrix and concentration level. Since the protocol requires a reagent blank for each sample matrix (water or soil) and concentration level (low or medium soil), the laboratory must ensure the proper number of reagent blank summaries are included.

The laboratory should list compounds (HSL or non-HSL) by order of fractions: VOA, BNA, Pesticide. Since a VOA blank is required each 12 hours volatile analysis is performed, compounds should be separated as Method Blank 1, Method Blank 2, etc. The laboratory should only report pesticides/PCBs detected in the reagent blank that meet the identification criteria (second column confirmation) specified in Exhibit E.

The laboratory should complete the columns for concentration, contract required detection limits (where applicable) and CAS number. Tentatively identified compounds (TIC) reported, must follow the identification criteria outlined in (Exhibit D). Compound spectra that fail the qualitative identification criteria must be labeled as "unknown".

Sample concentration data are to be reported uncorrected for blank values. The laboratory must ensure that the proper number of reagent blank analyses are performed. EPA data evaluators and/or data auditors will perform blank corrections on an as needed basis.

APPENDIX III

SOIL GAS SAMPLING TECHNIQUES

Phil Hunt, Environmental Scientist, Roy F. Weston, Inc., Region XII TAT

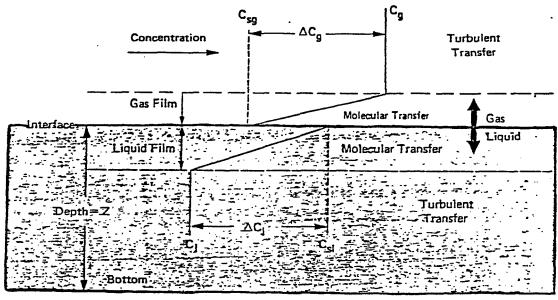
The measurement of soil gas provides a simple technique for rapidly assessing volatile organic contamination in soil and groundwater.

Soil gas measurement is based on the idea that volatile compounds in the groundwater or soil will volatilize into the airspace of the soil at concentrations that are related to the concentrations in the groundwater or soil. The soil vapor can be sampled by pulling a vacuum at a depth in the soil.

The current system employed by the EPA/ERT and ERT/TAT uses a 5/8 inch steel slambar to create a hole up to five feet deep. A 1/8 inch I.D. stainless steel tube is inserted in the hole and sealed at the surface with soil. A vacuum is drawn on the tube with a direct reading instrument for volatile organics and an initial reading recorded. A grab sample is then drawn into a Tedlar bag by drawing a vacuum around the bag with a portable air sampling pump. The grab sample is then analyzed in the field using a portable gas chromatograph to provide tentative concentration distribution of compounds and to prioritize samples for laboratory analysis. The grab samples are preserved on Tenax tubes in the field or laboratory, and analyzed by thermal desorption cryogenic trapping gas chromatograph/mass spectrometry (GC/MS).

This system employs increasing levels of analysis and quality control to provide for both rapid field assessment and detailed analysis of site contamination and plume spread.

This system has been employed successfully by the EPA/ERT and ERT/TAT at a number of sites. This measurement of soil gas has some drawbacks in soil and groundwater assessment that result from a variety of soil and groundwater conditions. Three case studies will be presented which highlight the success and failure of soil gas in contamination assessment.



Source: Liss and Slater [9]. (Reprinted with permission from Macmillan Journals Ltd.)

FIGURE 15—1 Two-Layer Model of Gas-Liquid Interface

### CALCULATION OF SOIL CONCENTRATION FROM SOIL GAS CONCENTRATION

Soil Water ug = Concentration 1

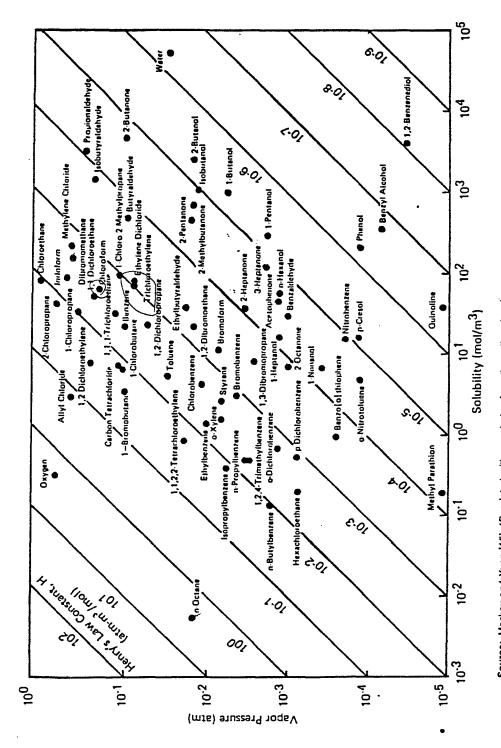
Henry's Law  $\frac{atm - m^3}{Mol}$  x Molar Volume  $\frac{Mol}{atm - m^3}$ 

Soil Concentration = Soil Water ug x Volume Water (1)
Concentration 1 Weight of Soil (kg

### Example Calculation

Given 10 ppm of toluene in soil gas:

Soil Water = 137  $\underline{ug}$  (ppb) Concentration

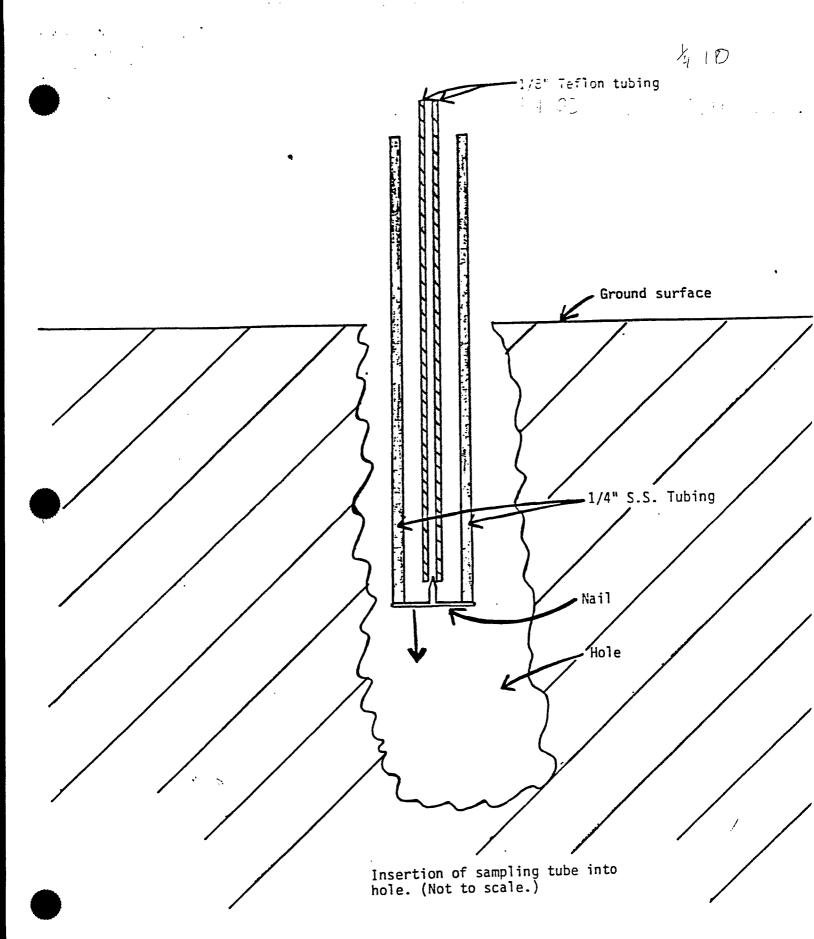


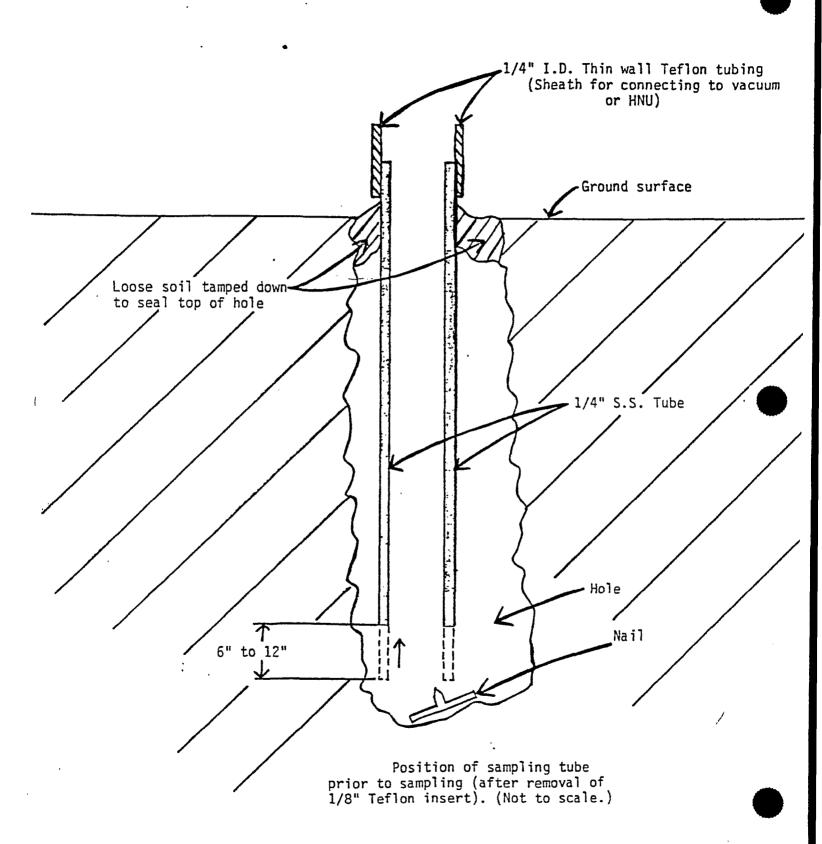
Source: Mackay and Yuan [15]. (Reprinted with permission from the authors.)
FIGURE 15-2 Solubility, Vapor Pressure and Henry's Law Constant

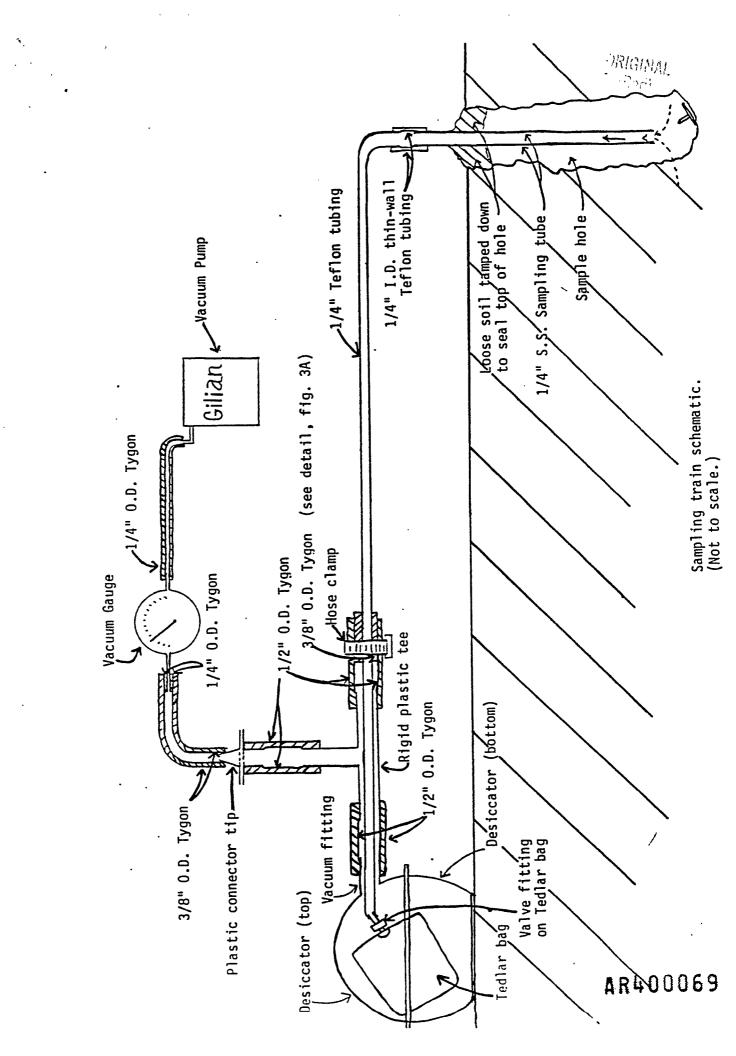
for Selected Chemicals

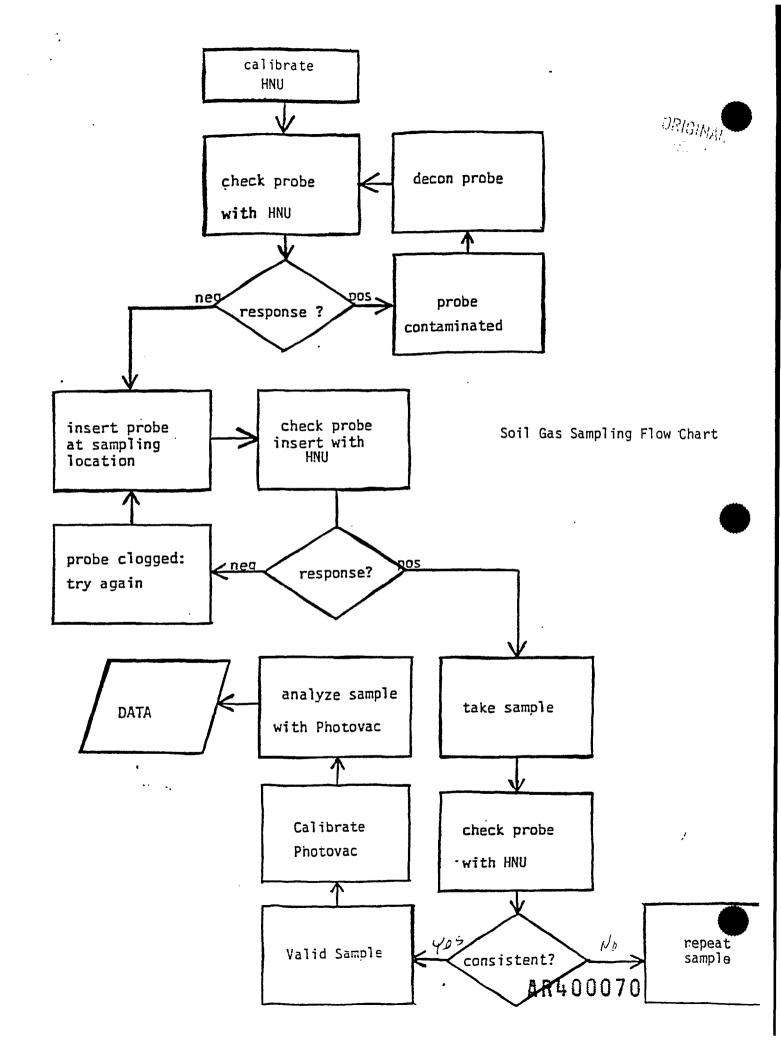
### SOIL GAS AND SOIL WATER CONCENTRATIONS FOR SELECTED COMPOUNDS

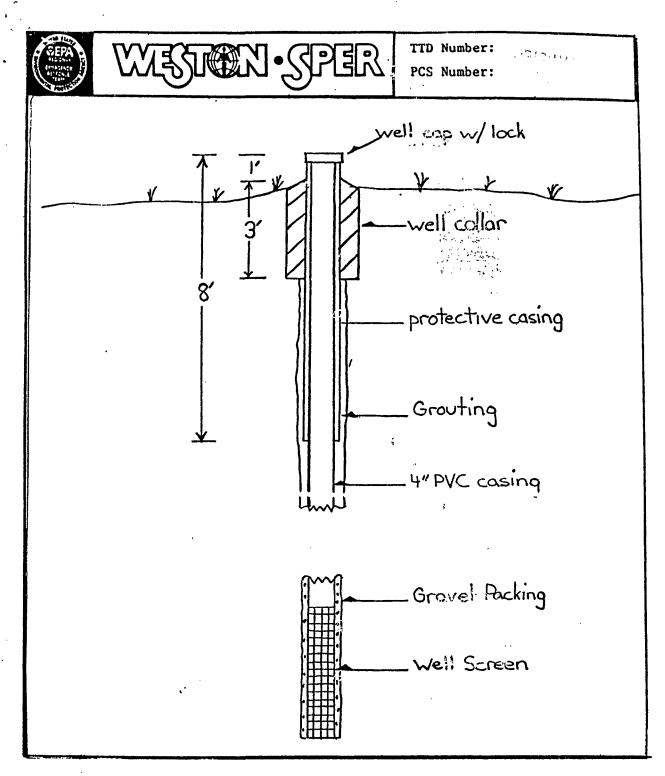
COMPOUND	AIR CONCENTRATION (ppb v/v)	SOIL WATER CONCENTRATION (ppb/w/w)
Toluene	100	1.4
Benzene	100	1.3
Ethyl Benzene	100	1.6
Xylenes	100 -	1.7
Trichloroethene	100	1.1
Tetrachloroethene	100	0.6
Methyl Ethyl Ketone (2-Butanone)	100	350.0
Methyl Isobutyl Ketone (2-Pentanone)	100	170.0
l-Butanol	100	1,041.0
Phenol	100	12,000.0











#### WELL DIAGRAM

DUBLIN TCE SITE
Dublin, Bucks County, PA

TCE Contamination Dublin, Bucks County, PA	ể / '文 /86
Resident 1 . B. Boyle	_
Address 115 N Main Street Dublin, PA	<del>-</del> -
Phone 215 249-0740	
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Treatment YesNo	Buy with at stine
Type 1: watering que Im principe	ng to purchase is writing little
Installation Date	
SAMPLING	
TCE Level Sampler	Date
Comments	

Originator\_



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MATH CHECK BY	DEPT	DATE		
METHOD REV. BY	DEPT	DATE	DEPT DA	TE
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METHOD REV. BY	DEPT	DATE	DEPT DATE	
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	cls County, PA	4		4
	•		184 See 5 5	
Resident H	t. Robert Rufe		S. S. S. War and Market	
Address_	Main Stree Dublin PA	E .	•	
	Dublin PA		4/9/86 NA.1115	
			NA. 1113	
	6	711/8		
Phone -	. (215) 249.	- 3465		
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Well water	r Yes	No		
D Win		N)		•
PUDIIC Wate	er Yes	No		
Treatment	Yes	aNo		
. type_				
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	CE level	Samples	Date	
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RFW 10-05-003/A-5/85			Originator	

9 15/86

TCE Contamination Dublin, Bucks County, PA Resident Dublin Fast Tog & Notary Address 105 North Missin Dublin PA (215)249-3278 Phone (215) 249-3278 Well Water Yes\_\_\_\_ No Public Water Yes No Treatment Type Country to owner put in what it inner believes I in a Installation Date about Zwill 300 ~ 2nd & Aug. -SAMPLING TCE Level Sampler Date

Comments

Originator\_\_\_\_



SHEET\_\_\_\_\_ of \_\_\_\_\_

CLIENT/SUBJ	ECT			W.O. NO
TASK DESCRI	PTION			TASK NO
PREPARED BY		DEPT	DATE	APPROVED BY
MATH CHECK	BY	DEPT	DATE	
METHOD REV.	BY	DEPT	DATE	DEPT DATE
TC	E Conta	mination		4/3/86
		s County, PA		9/9/8/ 1/25
9				, , , , , , , , , , , , , , , , , , , ,
Re	sident 1	Jublin Diner	(215	7249-3686 Juck Evans
Ac		V. Main Street		fail her tems
		Juben PA		
	-paper-fre			
<u> </u>	<i>-</i>	215)249-	7/8/	32122 - 12 - 12 - 12 - 12 - 12 - 12 - 12
> Ph	one _	213/277	3606	A Comment of the second
	•			
\ 1	11	Yes V	• 1	Separate well for dina
W	ell water	Yes	No	
D'	ble	Yes	N V	Water for drinking on
ro.	one water	Yes	140	pelientell asks.
To	atment	Yes /	-M-	Board of Health
				no pour per Nice
•	the Ch	arcoal treatme	it system \$ 15 tes in series	
	_ Z	Charcoal file	En in series	
-	installati	ion date	//	5,000 ppb across stust
			I Noll	
$\leq$	ampling			
	4	Elevel	sampler	Date
	,			
55 gallons/2	nevell			
2" A"	<b>ブ・</b>		**************************************	TIII Turne
120 roleon reter	watnesdy	well down 60	_	cott Labordones - curchose chorson filters
Infi - Chill con	Cara	Jugo down	o zofestin !  s check water e	41/2 high, i'diameter
Mr. Evans	Most Cases	igs pay you	U'	712 7
Con	nments	Quality Lob	s check water e	och month
		Aqua Pare La	ahs does work -	Gourd of Health
	••••••••••••••••••••••••••••••••••••••	in Quakersl	our gets copy - a	Found of Health Ed Powell AR400076
			Conty to	Late Noil MULLAND
RFW 10-05-	CO3/A-5/85			Ocionatas



	DESIGNE	HS CONSULTANTS	SH	IEET of
CLIENT/SUBJECT			W.O. NO	
TASK DESCRIPTION				0
PREPARED BY			APPRO	OVED BY
MATH CHECK BY			DEPT	DATE
	,			
TCE Cont	• •		9/8	186
Dublin, Bu	cks County, PA	l		
	-		(215) 249-93.	
•	Emico Inc.		215) 249-73.	<i>S C</i>
	123 N. Main			
	Doylestown, Pa	3	No one availa	ble
-			Call Comors	ow 4/9
D1	(215) 249-	9330	Ken Gardil	
rnone -	(3/3/211			lalac
			Called 9/	19/86 ur 1300 or
1.1.11	r Yes	N.	Try age	un 1300 or
well wall	1 165	No	/ /	
Public mala	er Yes	No		
LODIC WATE	100	140	•	
Trantment	Yes	alla		
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, type_	<u> </u>			
installa	ation date _	_/_/		
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Sampling				
4	CE level	sampler	Date	** :
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		•		
Comments				
			AR400	077
RFW 10-05-G03/A-5/85				



	DESIGNERS CONSULTANTS	SHEET of
CLIENT/SUBJECT		W.O. NO
TASK DESCRIPTION	Market and the second s	TASK NO
PREPARED BY DEPT_	DATE	APPROVED BY
MATH CHECK BY DEPT_		
METHOD REV. BY DEPT_	DATE	DEPT DATE
TCE Contamination	$\wedge$	1 / 186
Dublin, Bucks Count	y, PA	15 55
•	•	*\$ \$ <del>\$</del>
Resident Myer	s (Caa)	
Address 126 N M	Toin Street	Colled again
_ Duplin,	PA	
		1140 She stated that
Phone (215)	749-3694	she is not interested?
Trone	0/1	in response to my zero
•		the town was very to se
Well water Yes.	·/ No	willer in the fulur
Public water Yes.	No	and the first of the second
		`
Treatment Yes_	aNo	. •
1 3/2 1 1/2	and the same of the	we in a francisco
1. Type 12 saids	with 112 5-30	nem later
installation date	11	
		*
Sampling	, =-	Date
TCE leve	l sampler	Date
Comments 20 200	ر در این است. در در در در است. رستو بعود <sup>می در</sup> دی	
Comments Trasis	month.	and the state of t
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		AR400078

Originator -

RFW 10-05-003/A-5/85



SHEET\_\_\_\_ of \_ CLIENT/SUBJECT \_ W.O. NO.\_ TASK DESCRIPTION \_ TASK NO. APPROVED BY PREPARED BY \_ \_\_\_\_\_ DEPT MATH CHECK BY\_ DEPT \_\_\_\_\_ DATE METHOD REV. BY \_\_\_ TCE Contamination 9 / 8 /86 Busy 1515 Dublin, Bucks County, PA Grand Resident Doylestown Federal Sovins & Loon 215)348-9021
Well Address 174. Was N. Main Street

Aprilestown on Barbara Rowley Operations officer Phone (2:15) 348-9021 funk closes at 1700 9/9/86 Spoke to Barbura Cowley Well water yes No \_\_\_\_ Public water Yes \_\_ No \_\_\_ Not oward of any treatment Treatment Yes \_\_ . No \_/ type Calligan - softening water installation date // Sampling TCE level sampler Comments <del>ARL</del>00079. RFW 10-05-003/A-5/85



	DESIGNER	CONSULTANTS	SHEET of
CLIENT/SUBJECT			W.O. NO
TASK DESCRIPTION			TASK NO
PREPARED BY	DEPT	DATE	APPROVED BY
MATH CHECK BY	DEPT	DATE	
METHOD REV. BY	DEPT	DATE	DEPT DATE
TCE Cont Dublin, Bu	iamination clsCounty,PA	ı	1 186
Resident_	Farm Bureau	(2:	15) 249-3541
Address_	104 Mill Stree Dublin, PA	t	Sect Training
> Phone	(3.15) 249-	3541 in 811-5-3 80	pert or
	En les rustins		Contract the second
	r Yes	No	La transport of the second
D blea	- 44	No	per la company de la compa
To go um with ley	Yes	No	4. 1 2 3 3 . Been
Treatment	Yes	Al <sub>2</sub>	AND THE
ly sound !	iendo tiento.	, -	and the second of the second o
15 Type			
installa	ation date	5/0/80	
	-		
Sampling	CE level	sampler	Date
Comments		Jak top menyetik	the offer my by the market
	1 Comment		The section of the second
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RFW 10-05-003/A-5/85			



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CLIENT/SUBJECT			W.O. NO	
TASK DESCRIPTION				NO
PREPARED BY			APP	ROVED BY
MATH CHECK BY		DATE	DEPT	DATE
METHOD REV. BY	DEPT	DATE	DEP1	DATE
TCE Con Dublin, B	tamination cks County, P	A	<sup>9</sup> /	186
Resident	Bucks County	Bank	والمراشين المستنطق ا	J.,
Address	Charm	,	in week in	<b>,,</b>
17001000	145 N Main S	treet	Wardonse	· · · · · · · · · · · · · · · · · · ·
	Dublin PA		<u> </u>	and the state of the state of the
_			<del></del>	15 >
> Phone.	(215) 249-	3524	en's	
,			113-363	y " y " y " y " y " y " y " y " y " y "
Well water	er Yes	. No	17.65 M.	and the second
Public water	er Yes	N <sub>D</sub>		
Treatment	Yes	- No	Deficie yo	
- 1		and I imes	المستند المستد المستند المستند المستند المستند المستند المستند المستند المستند	
11 type	TINE BULL	· America la	Ling Sugar Sugar	<u> </u>
	ation date _	11		
INDON	allon bak _			•
Sampling		•	- 1 1 1 mm.	
20	TCE level	sampler	Date	
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DEW 10 05 00214 5195			~ · · · · · · · · · · · · · · · · · · ·	1100001
RFW 10-05-003/A-5/85			Driginator	



			SHEET	of
CLIENT/SUBJECT			W.O. NO	
TASK DESCRIPTION		· · · · · · · · · · · · · · · · · · ·	TASK NO	
PREPARED BY			APPROVED BY	,
MATH CHECK BY				
METHOD REV. BY	DEPT	DATE	DEPT DATE	
TCE Cont. Dublin, Bu	amination cls County, PA		1 / 186	
Resident_ Address_	Moyers Flow 138 N. Main Dublin, PA	ver Shop Street		
Phone _	(2:15) Z49-	3530		
Well water	r Yes	No	or wines when	
Public water	r Yes	No -		
	Yes			
The !	سے معام فردہ نے کیٹ جب بی ر	almin's often	ar The room on	
11 - 11 - 17:	virt seconds	It is the factor	is The room of	
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			-n-11C	
Sampling	CE level		Date	, e establica establic
**************** <u>*</u>				<b>→</b>
Comments				
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-		The state of the s	18600	<u> </u>
RFW 10-05-603/A-5/85		THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	7117000	<u>م-رح</u>
737 TT 10-03-003/A-3/03			Ociamator	

TCE Contaminati Dublin, Bucks O		9/8/86	A Surply of the Control of the Contr
bublin, bucks c	ounty, FA	to the Miles	nacida
Resident			
Address MC	Moyer's Vephont Rd		·
(2,	15) 249-3180		
Phone			
Well Water	Yes No	To brind with so	
Public Water	Yes No	3 month & experience	U 25-27 3 458
Treatment	Yes No		
Type Tuse in	e the scone Movers	when the thouse was	
Installation Da	te		
SAMPLING			
TCE Level	Samp1	er Dat	e
		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Comments			

Originator\_

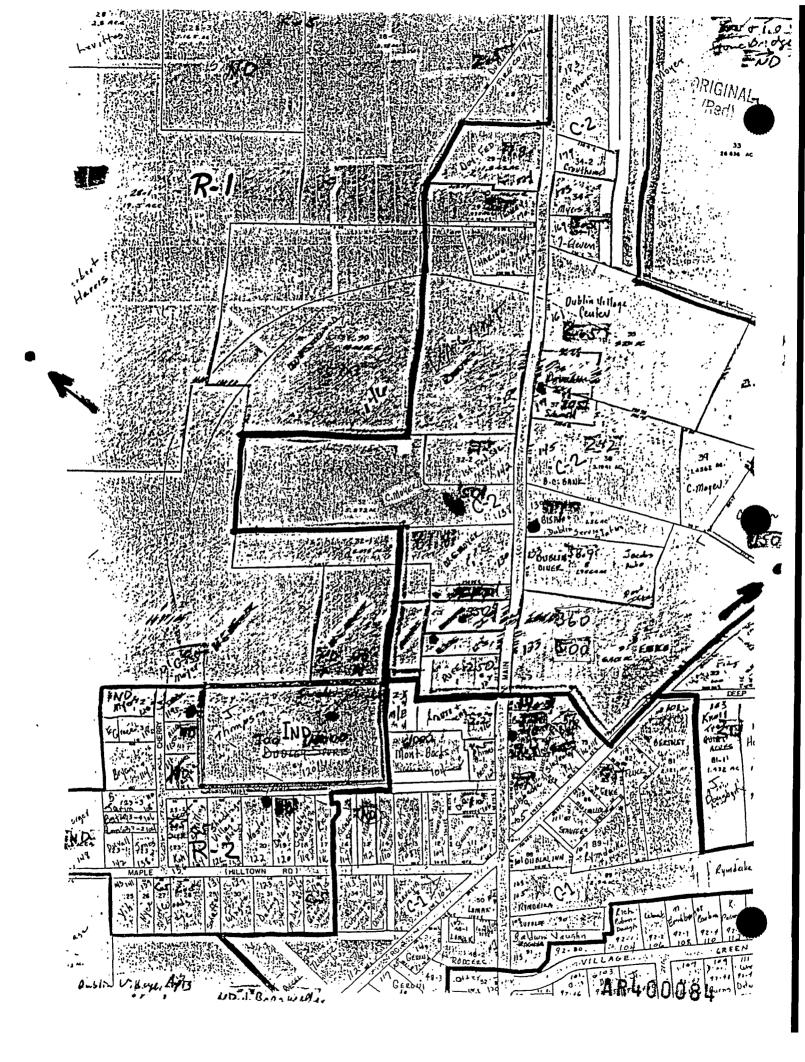


TABLE I

### TCE CONCENTRATIONS AND HEALTH ENDPOINTS OF CONCERN DUBLIN, PENNSYLVANIA

Let X = TCE level in well.

TCE CONCENTRATION (ug/L or ppb)	HEALTH ENDPOINT Of CONCERN	ESTIMATED LENGTH OF EXPOSURE TO ACHIEVE ENDPOINT OF CONCI	
		<u>Time</u>	Upper Bound Estimate of Cancer Risk*
X < 5	Probably None		
X = 5	Cancer	20 yr	$1 \times 10^{-6}$
X = 50	Cancer	2 yr	$1 \times 10^{-6}$
X - 130	Cancer Chronic toxicity	70 yr 50 yr	$1 \times 10^{-4}$
X - 260	Cancer Chronic toxicity	35 yr 25 yr	1 x 10 <sup>-4</sup>
X = 2000	Cancer Chronic toxicity	4. yr 3. yr	1 x 10 <sup>-4</sup>

<sup>\*</sup> Based upon an estimated upper 95 percent confidence limit of the carcinogenic potency of TCE.

Let yr - year, mo - month, wk - week, and TCE - trichloroethylene.

Estimates include exposure from 3 pathways of concern (i.e., ingestion, inhalation, and dermal absorption from well water). The table assumes no previous exposure or other routes of exposure.

TABLE II

## ESTIMATED TIME OF EXPOSURE TO ACHIEVE HEALTH ENDPOINT OF CONCERN DUBLIN, PENNSYLVANIA

X - TCE level in well.

TCE CONCENTRATION (ug/L or ppb)	ESTIMATED TIME OF EXPOSURE TO ACHIEVE ENDPOINT OF CONCERN			
	Chronic Toxicity		d Estimate of etime Cancer Risk 10 <sup>-4</sup>	
5 <b>-</b> X	>70 yr	20 yr	>70 yr	
5 < X < 50	>70 yr	2 yr	>70 yr	
50 < X < 130	50 yr	8 mo	70 yr	
130 < X < 260	25 yr	4 mo	35 yr	
260 < X < 2000	3 yr	2 wk	4 yr	

Let yr - year, mo - month, wk - week, and TCE - trichloroethylene.

Estimates are based upon the addition of exposure from three pathways of concern (i.e., drinking, bathing, and showering), correspond to the higher TCE level for each concentration range, and assume no previous exposure or other routes of exposure.

#### TABLE III

# SUGGESTED TIME FRAME TO IMPLEMENT ACTION TO PROTECT HEALTH AND MONITOR TAP WATER FOR ALL USES DUBLIN, PENNSYLVANIA

Let X - TCE Level in well.

TCE CONCENTRATION (ug/L or ppb)	ACTION RECOMMENDED TO REDUCE EXPOSURE	WITHIN	MONITORING FREQUENCY	WATER USES
5 > X	NO	•	semi-annual	all
5 < X < 50	YES	2 yr	semi-annual	all
50 < X < 130	YES	8 по	quarterly	all
130 < X < 260	YES	4 mo	monthly	all
260 < X < 2000	YES	immed .	weekly	all
2000 < X	YES	immed	verify	all

Let yr - year, mo - month, wk - week, and TCE - trichloroethylene.

The above table presents a suggested time frame to implement protective measures in order to protect public health from both chronic toxicity and an excess lifetime cancer risk (1 x 10<sup>-6</sup>) due to multiple pathways (i.e., drinking, bathing, and showering). Note that the above table assumes no previous exposure or other routes of exposure. The time-frame for implementing actions to protect public health and/or to monitor tap water would also be dependent upon the length of previous exposure, current exposure, the status of the groundwater contamination plume, or continued use of the groundwater resources for drinking, cooking, bathing, or showering.

#### REFERENCES

- EPA, Office of Drinking Water, Draft Health Advisory for Trichloroethylene, September 30, 1985.
- Brown, Halina Szinwald, Ph.D., Bishop, Donna R., M.P.H., Rowan, Carol A., M.S.P.H., "The Role of Skin Absorption as a Route of Exposure for Volatile Organic Compounds (VOCs) in Drinking Water," American Journal of Public Health, Vol. 74, No. 5, May 1984.
- 3. EPA, Draft Superfund Public Health Evaluation Manual, December 18, 1985.
- 4. EPA, Office of Water Planning and Standards; Water-related Environmental Fate of 129 Priority Pollutants, Volume 2, EPA-440/4-79-029b, December 1979.
- 5. EPA, Office of Toxics Integration, Office of Pesticides and Toxic Substances, Intermedia Priority Pollutant Guidance Documents, July 1982.
- 6. Love, Jr., O. Thomas, and Eilers, Richard G., Treatment of Drinking Water Contamining Trichloroethylene and Related Industrial Solvents, Journal American Water Works Association, August 1982.

2.5pc1 177 N Muint (TCE levels are 78 pph 174 N. Hain underlined) 3.70ch 1760 Ham ) ATTACHMENT C 30 161 420ppb 6/11/86 150 39-1 1.0006 24200 142# L4562 M. 50PAB <u> 138</u> 17000 152 150ppb 139 32-1 N.D. 6.675 M. 130 13 9 Elepher 133 58.9ppl 217ppb 128 3 1.3006 350pp 126 4 360pp6 Well#1 124 5 500ppb Well#2 6.4. ж. <u>5.6 ppb</u> 250ppb WELL I 5,000, pb 122 2-1 5 423/86 2.2000 10,000 ppb 103 100 ppb 104 50/97 105 109 164 115 120 107 111 SITE NAP 48.4 Dublin TCE Site Bucks County, PA September 15, 1986 isdle 150 - 2.0ppb 100 - Street Number 48400089 and 152 - 150 ppb 137 S. Main 105pph N.D. non-dotectable 163 S Mair N.D. mint /nz